‘Travelling Together’: Disability Inclusive Road Development in Papua New Guinea

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FACULTY OF ARCHITECTURE BUILDING & PLANNING

PNG Assembly of Disabled Persons

Cardno
Shaping the Future

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Madang

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Executive Summary

Travelling Together: Disability Inclusive Road Development in Papua New Guinea is a three year (May 2010 – April 2013) research project funded by AusAID, under their Australian Development Research Awards (ADRA) program. It is being implemented by project partners including the Faculty of Architecture, Building and Planning, University of Melbourne; the CBM Australia – Nossal Institute Partnership for Disability Inclusive Development; the PNG Assembly of Disabled Persons; Cardno Emerging Markets; and Divine Word University.

The project examines access to road infrastructure in Papua New Guinea by people with disabilities. It is a key project principle that people with disabilities are partners in the research and that they participate fully in every phase of the project.

With the rapid development of roads in PNG and increasing concerns about road safety, and the fact that people with disabilities often face physical and other barriers in accessing key infrastructure, the project focuses on four questions:

1. What are the barriers and facilitators for people with disabilities accessing roads in rural and urban PNG?
2. What are the outcomes of rural and urban road projects on the lives of people with disabilities and their families?
3. How have people with disabilities participated in rural and urban road planning?
4. What are the recommended approaches in disability inclusive consultation and participation in road planning and development in PNG?

We developed four different data collection tools, designed allow people with disabilities to conduct their research and follow up with advocacy. These were:

1. Interviews with road decision-makers (RDMs) about processes for planning and implementing road construction or improvement, their awareness of traffic accidents and injuries along the road, and their knowledge of use of roads by people with disabilities.
2. Group discussions with people with disabilities: how they used roads, particular issues or problems using roads, what segment of road should be more intensively examined.
3. 'Moveabouts', in which the groups moved along a small segment of the road and suggested concrete improvements (e.g. crossings near a school or hospital)
4. Photo elicitation and poster-making: group members took photos of good and bad aspects of the road and associated infrastructure, and then used the photos to make posters showing problems and suggesting improvements.

In each of five locations (two urban and three rural, all where roads had recently been built/improved or were under improvement), one male and one female data collector were recruited. All of the data collectors were people with disabilities who lived in the location under study. The data collectors participated in two weeks of training on using the data collection tools. In each location, between 7 and 12 people with disabilities were consulted,

along with two RDMs (engineers, planners, or local political leaders). The people involved in the research were of various ages, both genders and had a range of different impairments, including mobility, sight, hearing, and intellectual impairments.

Following the data collection process, a six day data analysis workshop in February 2012 collated and analysed the findings from the sites. Key findings included:

- People with disabilities use roads extensively to access neighbouring towns, services, schools, stores, hospitals and other health facilities, churches, to visit friends and to carry out livelihood activities such as gardening.
- Construction and maintenance of roads generally increased the ability of people with disabilities to access essential services, but increased traffic and speed of vehicles threaten access and safety.
- There was little awareness amongst road decision-makers (RDMs) about use of roads by people with disabilities. There was no evidence of people with disabilities having been specifically involved in consultations or discussions about their need with regard to road infrastructure. Community consultation processes have been minimal.
- RDMs also displayed little knowledge of accidents or injuries that had occurred on the roads, let alone whether these had involved people with disabilities.
- RDMs were generally responsive to the idea of consulting with people with disabilities in future.
- The key barriers to accessing roads identified by people with disabilities were: lack of footpaths or graded road edges; lack of marked crossings; narrow bridges with limited pedestrian access; poor road drainage and maintenance; lack of marked bus stops; potholes, open drains, and other hazards; and lack of public awareness of safe speeds and needs of people with impairments.
- Some facilitators were identified which assisted people with disabilities in accessing roads. Important features included: quiet, well-maintained roads; amenities such as street lights, bus stops or footpaths; and public assistance in crossing or navigating roads.

The qualitative tools used by the project for data collection were largely found to be successful methods of engaging with people with disabilities. With some minor modifications, they are recommended for use in future consultations with people with disabilities in road planning processes, and also have potential for use in consultation on development activities more broadly.

Based on the findings of the data collection and analysis, the focus of the final year of the project (May 2012 – April 2013) is to:

- Develop guidelines to support disability inclusive infrastructure consultation, planning and development for use by a variety of stakeholders, such as AusAID, the Government of PNG, UNESCAP, UN-Habitat and contractors currently operating in PNG;
- Develop a training package for disability inclusive infrastructure planning and development, to be conducted by disability organizations for infrastructure stakeholders;

- Work to ensure that people with disabilities, including women, have ownership of the research and the capacity to utilise the findings in advocacy with the PNG government and development sectors; and
- Disseminate the findings of the research and the guidelines and training package, particularly to donors, road decision-makers, people with disabilities and their organisations in PNG and the broader planning and disability communities.

Introduction

Travelling Together: Disability Inclusive Road Development in Papua New Guinea is a three year (May 2010 - April 2013) research project funded by the Australian Agency for International Development (AusAID) under their Australian Development Research Awards (ADRA) program. It is a participatory research project addressing access to road infrastructure in Papua New Guinea by people with disabilities.

The research is being implemented by diverse project partners including the Faculty of Architecture, Building and Planning, University of Melbourne; the CBM Australia – Nossal Institute Partnership for Disability Inclusive Development; the PNG Assembly of Disabled Persons; Cardno Emerging Markets; and Divine Word University.

It is a key principle of the project people with disabilities are partners in the research and that they participate fully in every phase of the project. Other principles underpinning the project and the way that it is implemented are:

- The project and its outputs are accessible;
- A focus on capacity development, particularly for people with disabilities and their organisations;
- Seeking to ensure inclusion of all groups within the research process; and
- A focus on building of partnerships.

The primary purpose of this report is to document and present the progress and of the project during its first two years of implementation. It is focused particularly the findings of the participatory data collection and analysis conducted in 2011 and early 2012, and the analysis of the participatory data collection methods used and the effectiveness of these; and also presents the findings of the literature review. It also outlines the next steps for the final year of the project.

Understanding Disability

The Convention on the Rights of Persons with Disabilities defines people with disabilities as "those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others".

Poverty is both a cause and a consequence of disability. People living in poverty are more likely to develop impairments due to illness arising from poor living standards and lack of accessible and appropriate health care. Once the individual has developed impairment, they may be excluded from, and discriminated within society, reducing their access to opportunities which would improve their socioeconomic situation. Such opportunities include education, work and mainstream services or projects. The exclusion of people with disability in the education and employment sectors, and the additional costs incurred managing illness and impairment, has wider implications for their families and communities, and precipitates the cycle of poverty. Hence, inclusion of people with disability in development activities is essential to not only break the cycle of poverty and disability experienced by that individual, but to also ensure poverty reduction for the

Literature Review

A literature review was conducted by the project in October 2010 which identified appropriate background information relating to disability and road planning in PNG, as well as existing evidence and best practices on inclusive road infrastructure planning and design in developing countries. Key findings included:

- Despite the fact that an estimated 10-15% of the population, or 520,000 people, are living with a disability in Papua New Guinea, people with disabilities are often excluded from community development activities. Previous disability surveys in PNG have demonstrated the challenges in defining disability and understanding the experience of people with disability through quantitative methods, as well as the challenges to rigor and reliability of study designs.
- Road infrastructure is a recognized approach to poverty reduction in developing countries, and research from PNG has demonstrated positive changes in income and travel time to schools and health clinics for village members living near road and bridge developments. There is no evidence however as to whether these benefits are equitably distributed and enjoyed by people with disabilities, or whether there are in fact negative outcomes for people with disabilities as a result of road development.
- There are very few studies of the impact of roads on people with disabilities in developing countries. One study investigated the impact of a road on the pedestrian movement of people with disabilities and older persons in Nairobi. It was observed that a major road in Nairobi failed to adequately accommodate the needs on pedestrians and particularly people with disabilities. The majority of people with disabilities and the elderly were observed to be stressed and nervous when trying to traverse the road, which had inadequate crossings. This is in contrast to those without disabilities, who were typically relaxed or able to run across the road.
- The Government of PNG is responsible for the maintenance and development of the national road networks, with provincial governments being responsible for the planning of feeder roads. There is very little published literature on how community members contribute to road planning at national and provincial levels.
- There is limited literature from other developing countries on different methods for engaging communities in road planning, but none which specifically consider the inclusion of people with disabilities. There are however some technical standards and guidelines for accessible road planning in urban centres.

The literature review also identified that its findings had key implications for the development of the research project:

- The research needed to consider qualitative methodologies which would more effectively explore the situation of people with disabilities and the impact of roads on their lives.
- The Washington Group questions should provide the basis for defining disability.

- The research should seek to include women and youth with disabilities, and people with different types of impairments, thus recognising the diversity of the population of people with disabilities and seeking to explore different experiences and perspectives.
- Rights based approaches should be considered throughout the project design and implementation, optimising empowerment of the disability movement in PNG and the longer term outcomes.
- The project should consider mapping the existing GoPNG planning and community participation processes through additional data collection approaches such as key informant interviews.

Research Framework and Methodology

Research Questions

With the rapid development of roads in PNG and increasing concerns about road safety, and the fact that people with disabilities often face physical and other barriers in accessing key infrastructure, the project focuses on four questions:

1. What are the barriers and facilitators for people with disabilities accessing roads in rural and urban PNG?
2. What are the outcomes of rural and urban road projects on the lives of people with disabilities and their families?
3. How have people with disabilities participated in rural and urban road planning?
4. What are the recommended approaches in disability inclusive consultation and participation in road planning and development in PNG?

Project Outcomes

The project aims to deliver the following policy outcomes/outputs:

1. Prioritize infrastructure needs of people with disability and appropriate responses in rural and urban PNG contexts
2. Contribute to the evidence base for disability inclusive infrastructure development across the Asia-Pacific region
3. Develop guidelines to support disability inclusive infrastructure consultation, planning and development for use by a variety of stakeholders, such as AusAID, the Government of PNG, UNESCAP, UN-Habitat and contractors currently operating in PNG
4. Develop a training package for disability inclusive infrastructure planning and development to be conducted by disability organizations for infrastructure stakeholders
5. People with disability, including women, will have ownership of the research and the capacity to utilize the findings in their advocacy and rights based work with the PNG government and development sectors.

The methodology and framework for answering the research questions were developed in close consultation with people with disabilities, road decision-makers and other key stakeholders. Consultative workshops were held in Port Moresby in September 2010 with the project's PNG Advisory Committee, which includes key national government departments, and disability organisations. In addition the project also drew on the expertise of an international advisory panel, comprising experts in disability inclusive development, infrastructure and qualitative research.

Methodology

As planned from the beginning of the project, and supported by the findings of the literature review that qualitative methodologies would more effectively explore the situation of people with disabilities and the impact of roads on their lives, a qualitative approach was taken. Four different data collection tools were developed, designed to allow people with disabilities to conduct the research and follow up with advocacy. These were:

1. Interviews with road decision-makers (RDMs) about processes for planning and implementing road construction or improvement, their awareness of traffic accidents and injuries along the road, and their knowledge of use of roads by people with disabilities.
2. Group discussions with people with disabilities: how they used roads, particular issues or problems using roads, what segment of road should be more intensively examined.

3. 'Moveabouts', in which the groups moved along a small segment of the road and suggested concrete improvements (e.g. crossings near a school or hospital).

4. Photo elicitation and poster-making, in which group members took photos of good and bad aspects of the road and associated infrastructure, and then used the photos to make posters showing problems and suggesting improvements.

Research Sites

The decision was made to focus on data gathering in five sites. The five sites were selected to include both new roads and older roads undergoing maintenance, areas representative of all regions of the country (coastal, the highlands, the islands), rural and urban sites.

Selected Locations

Location	Road	Rural/Urban	New/Refurbished
Port Moresby	Boe Vagi, Hanuabada village	Urban; waterfront informal settlement	Recently completed; road also undergoing refurbishment
Madang	Madang-Bogia National	Rural; northern	Refurbishment planned

	Highway, Talidig Market to Talidig school	coast of mainland PNG	
Kavieng	Buluminsky Highway between Kavieng and Lemakot	Rural; town with population of 10,000; island location	Refurbishment planned
Goroka	Eastern Highlands Highway, Rotary Park to National Sports Institute	Urban; town with population of 25,000	Refurbishment planned
Lae	Western Highlands Highway, Zifasing stretch	Rural; small village location	Road undergoing refurbishment (resealing)

Data Collection

Involvement and leadership of people with disabilities at all stages is a key principle of the project, and consultation processes in PNG reinforced the need, desire and capacity for locally based research coordination and data collection and analysis led by people with disabilities. The Chairperson of the PNG Assembly of Disabled Persons (PNGADP), Ipul Poweseu, was hired as the project research coordinator. Ms Poweseu, in turn, hired one female and one male data collector, who were all local people with disabilities, in each of the study sites.

The data collectors were brought together for an eight day training workshop/pilot testing session in June 2011 in Madang. For four days the workshop involved an introduction to each of the four qualitative research tools (focus group discussions, interviews with key decision-makers, moveabouts, photo-elicitation) in the morning, and the tools were piloted in the afternoon at a drop-in centre for people with disabilities (which included hearing and intellectually impaired children and adults as well as people with mobility and visual impairments). The other days were spent collectively amending the tools in response to the pilot trials, working on media and advocacy skills, and ensuring that the research protocols were understood and capable of being rephrased in Pidgin and other languages.

After a revision of the research protocol in response to the piloting, the data collectors carried out the research in their local areas from September 2011 until January 2012. The research protocol assumed a sequencing of the four qualitative methods. The interviews with road decision-makers (civil engineers and in some cases, local politicians involved in the planning and maintenance of road infrastructure) was the first task. The reason for this was to ensure that road decision-makers were aware of the project from the first, and also to invite them to the moveabout. The road decision-makers were interviewed using a one hour survey instrument, in which they were queried about their knowledge of the local area, their knowledge of traffic accidents along the roads, their knowledge of the needs of people with disabilities, and their consultation methods (if any) related to road planning and maintenance.

The remaining methods were implemented with groups of people with disabilities living in the local area serviced by the road under study. The data collectors gathered the names of 20 potential participants, and tried to ensure that this group included people of a range of ages and with varied impairments, and a balance between men and women. Of these potential participants, in each location a smaller number were actually available to participate in the group discussion and other activities.

The groups included a range of ages and genders, although the majority of participants were aged below 30. This may have been because of the greater enthusiasm of this group for involvement in the project, and also because in some locations participants were identified via service providers which largely work with younger people.

The participants also represented a wide variety of impairment groups – people with physical impairments, hearing and/or speech impairments, visual impairments as well as intellectual impairments were involved in the research.

Participation of people with disabilities in data collection

Location	Number of participants (not including parents/ assistants	Approximate age range	Range of impairments of participants
Port Moresby	10 (6 female, 4 male)	10–56 years (most aged 20–30 years)	Speech and hearing, visual, intellectual impairments, wheelchair users
Madang	8 (5 female, 3 male)	All aged under 30	Physical, visual and hearing impairments
Kavieng	11 (6 female, 5 male)	Eight aged under 25; 3 adults	Visual, hearing and intellectual impairments
Goroka	12 (2 female, 10 male)	20–40 years	Mobility, speech and hearing, and multiple impairments
Lae	7 (5 female, 2 male)	Four children 6–8 years; teenager; two elderly	Physical, hearing, intellectual impairments

The research was able to involve members of the disability community that are often hard to reach, including people with hearing impairments, children and those with intellectual impairments. However one notable gap is people with psychosocial impairment (also referred to as mental illness), who were not represented in any of the groups. This could be considered an indication of the vulnerability and exclusion of people with psychosocial impairments – they are often particularly stigmatised within any community, and may be less likely to be in contact with service providers, disabled people's organisations or other networks. Therefore it is not surprising that none participated in the project; however their absence also indicates a need to specifically target this group and identify appropriate ways to try and involve them in research activities.

Following identification of participants, the focus group was the next research activity. This introduced the project to participants and started them thinking about road accessibility. The focus group discussions took between 1 and 3 hours, and included questions to get a sense of what local and regional destinations were most important to access, and also which particular area was felt to be most in need of accessibility transformation. An output of this research activity was a map of key features of the road and location, and liked and disliked spaces. In two sites, there were multiple focus groups. One site held a separate group with people with hearing impairments to allow for appropriate communication techniques to be used, while a second site held a separate group with children with intellectual or multiple impairments and their carers (normally parents).

Disposable cameras were distributed to participants at the end of the focus group discussion and participants told to take photographs of aspects of the environment they

liked or disliked. They were also told to return their cameras at the next activity, scheduled between 7-14 days after the focus group discussions.

The third research activity was the moveabout, an access audit that took place along the stretch of road identified during the focus group discussion. Questions about ease of access, traffic, lighting, signage and other considerations were asked by the facilitator of the session and answered by participants, while the other data collector took notes. Because of the nature of the participants and also the difficulty in moving a group of 8–12 people along a road, it was expected that the stretch of road audited would be no more than 500 metres long. In every site, the audit took place at a confluence of several important destinations – schools, hospitals, shops, bus connections.

The final research activity took place after the photographs were developed, which in some locations was delayed due to lack of local processing facilities. This final task involved the creation of posters (annotated photographs pasted on butcher's paper) of 'likes' and 'dislikes' in terms of road access in the local environment. The data collectors were given the choice as to whether to create individual participant posters or a collective poster. These materials were collected by the data collectors, and a final thank you and discussion of next steps ended the data collection in each site.

Research Findings

Following the completion of the data collection process, a six day data analysis workshop in February 2012 collated the findings from the sites, namely completed interviews with data collectors; maps and notes from the focus group discussions; photographs and notes from the moveabouts; and the posters. The findings have been collated according to the research questions. Case studies from each locations have also been included to provide individual stories about how people with disabilities use roads and are affected by barriers to access.

1. **How have roads changed the lives of people with disability and their families, for good and bad? / What are the outcomes of rural and urban road projects on the lives of people with disabilities and their families?**

The findings indicate that people with disabilities in all the research sites use roads extensively to access neighbouring towns, services, schools, stores, hospitals and other health facilities, churches, to visit friends and to carry out livelihood activities such as gardening. It is clear that roads are used by people with a range of different impairments for day-to-day access to services and for work and leisure activities – in the same ways that the wider community use and rely on roads. Journeys were largely on foot/wheelchair or using a public motor vehicle or PMV (typically a bus or van).

> "We attend schools – travel by PMV and walking. Fetch water, look for firewood. Go to canteens and trade stores to buy food, soap, clothes and many other things ... Visit friends and families in the village during the weekends and holidays, play in the Mt Zion fields, go to church where there are many gatherings." *Group discussion, Goroka*

Respondents generally indicated that the construction or restoration of the road in their area had increased their ability to access amenities. The exception was in Port Moresby, where some participants indicated that the road was quite inaccessible for people with physical disabilities, hence it did not help their access.

Despite the importance of roads for accessing services, factors such as traffic and accessibility did restrict the use of roads by people with disabilities in some locations. Most of the road sites studied were highways and had large amounts of traffic, often travelling a high speeds. Respondents perceived that they were in danger of being hit by passing vehicles, and some avoided the use of main roads as a result. In Lae, while some people with disabilities avoided the main road for this reason, others continued to use it because the short cut was narrow and overgrown, hence difficult to use with a crutch.

Hard to leave the house
'Marie' is a 19 year old who has a mobility impairment and short stature. Due to her disabilities she rarely leaves her home, but sells cigarettes and betel nut at a stall outside her house.

During the project moveabout activity and with advocacy from a CBR (Community Based Rehabilitation) worker, Marie came out onto the road near her house for the first time. She was happy to be involved in the moveabout, but found it difficult to walk along the road verge due to loose stones and the steep gradient. Marie also encountered problems when she needed to go to the toilet – there were no toilets available so she needed help to scramble into the bush for privacy. In the end she travelled on the truck to finish the moveabout.

Road decision-makers displayed little knowledge of accidents or injuries that had occurred on the roads, let alone whether these had involved people with disabilities. Typically they pointed to other agencies, such as the police, hospitals or National Road Safety Council, as being likely sources of this information. They did not consider information about accidents important to the process of planning and implementing road construction or upgrades. Given that road traffic accidents are an increasing cause of death and injury in PNG, this is worrying.

2. What are the barriers and facilitators for people with disabilities accessing roads in rural and urban PNG?

Barriers
Respondent identified many factors which acted as barriers to accessing roads. A key issue was that roads seemed to be planned for use by vehicle traffic, not by pedestrians. This is despite the fact that the primary mode of transport in PNG is walking. Roads typically lacked features to assist people with disabilities and other pedestrians. Key problems included:

- Lack of footpaths or graded road edges
- Lack of marked crossings

- Narrow bridges with limited pedestrian access
- Poor road drainage and maintenance
- Lack of marked bus stops
- Potholes, open drains and other hazards
- Lack of public awareness of the use of roads by people with disabilities and their needs.

Difficult to walk to church along the highway
'Florence' is a 55-year-old from Kavieng who is recognised as a community leader and 'wise woman'. She has a visual impairment related to diabetes, which means she often now stays at home though she previously worked.

Florence used to live near the beach, but her house was washed away by a king tide. She now lives 1 km inland, and has to walk this distance back to get to the church she attends. The route she walks is along a highway. The road is steep and has no footpath, and the roadside is often obstructed by bushes unless the community has cleared it. There is also no crossing or signs to indicate where people cross the road. Her grandson acts as a guide for her.

While these issues impact to some degree on all road users, whether or not they have a disability, they can be particular barriers for people with disabilities. For example wheelchair users and others with physical impairments find navigating poorly maintained footpaths and potholed roads particularly difficult, and in some cases impossible.

Marked crossings are especially useful for people with mobility impairments as well as those with hearing and vision impairments, who may find it difficult to cross roads safely otherwise. Pedestrians are particularly vulnerable when crossing roads: National Road Safety Council data on road casualties in 2007 indicates that between 28% and 38% of pedestrian casualties were crossing the road when hit.[1] There is no indication as to how many casualties were people with disabilities; however they are likely to be amongst the most vulnerable road users.

Dangerous road crossings
'Raymond' is a 15 year old boy who is hearing impaired. He lives in a village near Lae and feels safe walking along the local road. However the nearby stores are located on the national highway, at a dangerous intersection where it is difficult to see traffic coming. The road has been upgraded and traffic travels at high speed. There are no stop signs, traffic lights or crossings at the intersection, despite it being an area where many people cross.

Raymond is afraid to walk on the road to the stores alone as he mightn't be able to hear the traffic and feels he could be hit by a car. When his mother sends him to buy things at the stores, he tries to take friends along so that he can cross the road with them.

Facilitators
Although most of the emphasis of discussions was on problems with the roads, in some locations there were factors which assisted people with disabilities to access the roads. For example, people with visual impairments in Goroka mentioned that they used a particular

[1] Two different figures are given in the report, one for 'pedestrian location' and one for 'pedestrian action'. The variation is probably due to data inconsistencies and/or whether 'unknown' was factored in when percentages were stated.)

route to reach the primary school, as there were fences along the whole route that helped them to feel their way.

Roads that were quiet, well-maintained and had footpaths, bus stops and/or street lights were viewed as easier to use. If many other pedestrians also used the roads this could facilitate use – a hearing-impaired person in Lae reported that they usually crossed the road near the market, school or other locations where many people gathered, as others could help them to see the traffic and cross safely.

The National Road Safety Council notes in its 2010 Road Safety Review that "engineering and enforcement initiatives at specific locations or along particular routes ... can have a more immediate impact [than awareness campaigns]. Indeed, engineering improvements are often cheaper, simpler and more sustainable in reducing crashes than driver training or using education, legislation and enforcement to alter road user behaviour" (although it emphasises that enforcement, education and engineering should be implemented together in order to achieve real improvements in road safety)[i]. This emphasis upon the importance of engineering improvements fits with the observations of people with disabilities about the kinds of changes that would make them feel safer in using roads and road infrastructure – they particularly wanted specific features such as crossings, bus stops and footpaths, which could be easily integrated into road design and construction.

3. How have people with disabilities participated in rural and urban road planning?

The road decision-makers (RDMs) interviewed typically knew little about people with disabilities in the area where the road was built. One RDM considered that "no people with disabilities use the road in the current situation". Some mentioned having seen wheelchair users, or others with obvious physical impairments, using the road to access the hospital or travelling within the town. They noted it was difficult to identify people with other impairments.

> "Frankly, people with disabilities are never considered [in road decisions]"
> Road decision-maker, Kavieng

There was no evidence of people with disabilities having been specifically involved in consultations or discussions about their need with regard to road infrastructure. RDMs reported that various activities were carried out in order to consult with communities more generally. In some cases, road planners said that their organisations met with village representatives to consult on road location, and had community meetings. Others stated that almost all decisions about road infrastructure were made by government, provincial, town or traffic authorities, planners and engineers, without input from affected communities. This included issues such as road location, width, placement of crossings and signs, speed limits and footpaths. Sometimes information was provided about the road to communities through channels such as

> "No one considers needs of people with disability, but I have come to realize that it is best to plan ahead because disability might happen to you, your loved ones, your wontoks and so forth." Road decision-maker, Goroka.

newspapers and radio, however this did not include a consultation process. One RDM reported that while the decision-making process should involve gathering of data on road impact and liaison with stakeholders, in practice this did not happen due to cost-cutting.

Within these processes, the needs of people with disabilities were not considered separately from other community members. One RDM reported that this was because, "after all, all of us are going to use the same road to travel and do many other things". All RDMs stated that they had not considered the needs of people with disabilities, and there was little or no indication that RDMs even recognised that people with disabilities might have differing access needs. Such needs were not considered in road design: some interviewed RDMs noted that features such as ramps or footpaths were not included, partly due to the costs involved.

Despite the lack of understanding of access issues for people with disabilities, almost all of the RDMs interviewed were responsive to the idea of consulting with people with disabilities. They readily recognised that access issues existed and were important to consider.

Although RDMs referred to general consultation processes, in the group discussions none of the participants had been involved in or were aware of *any* consultations about roads, either those being constructed or those undergoing maintenance. Typically they said that nobody had ever asked them questions about the road or the way that they used road infrastructure, until they became involved in this project. This could be indicative of people with disabilities being excluded from consultations that do take place, for example because information is not provided in an accessible format or does not reach isolated members of the community. However given the unanimity of the response, it's likely it also indicates that existing general consultation processes do not reach most community members, including people with disabilities.

The lack of consultation processes may illustrate wider issues with the approach to road planning and construction in PNG. The NRSC Road Safety Review includes as its first recommendation that the Department of Works (DoW) and the National Road Authority (NRA) "consider

Blocked footpaths, rickety jetty

'David' is a 57 year old man who lives in a village in Port Moresby. His house, like many in the village, is built on stilts over the sea and is accessed by a jetty.

Before he acquired his physical disability David was the main income earner for his family, but now he is often confined to his house because it is difficult for him to travel on the jetty. He needs assistance to navigate the jetty, which is rickety and often slippery because people use it as a location to do their laundry.

In order to move beyond his home David needs to borrow a wheelchair. He likes to attend church about 20 minutes away and can travel by wheelchair up the main road, however it is steep and he needs his wife to push him. He also needs to travel on the road as the footpath is blocked by market stalls and people using it as a social space. He also borrows the wheelchair in order to take his daughter to school.

including safety as a monitoring criteria [sic] for their roads with respect to 'good' condition rather than simply surface condition/operating speed'[ii]. This suggests that the safety of all road users, not just people with disabilities, is being largely ignored by RDMs or agencies responsible for road construction and maintenance.

4. What are the recommended approaches in disability inclusive consultation and participation in road planning and development in PNG?

As noted above, while RDMs were generally unaware of the needs of people with disabilities regarding road infrastructure prior to being interviewed, they were responsive to the concept and considered that engaging with people with disabilities would be a good idea. This provides a grounding for promotion of disability inclusive consultation processes within road planning and development.

The tools utilised by the project were evaluated as part of the data analysis process and these findings are presented below. Some of the tools require relatively minor modifications from the versions used during the research project and recommendations have been made; notwithstanding this, these tools are recommended for use in consultations and promoting participation of people with disabilities in road planning and development processes. There are now ten trained data collectors in PNG who can implement these tools and lead and facilitate inclusive processes: .

Potholes and rain cause hazards for wheelchair user

'Grace' is a woman aged in her 40s who uses a wheelchair due to her paraplegia. She lives in the Goroka town area and uses the road often, including to go to the store and the market and to use the post office. However the road is difficult for her to access when it rains, as her wheelchair can't navigate the potholes on the road. On one occasion she was using the road to get to a meeting, and overbalanced and fell out of her wheelchair.

Grace lives with her young daughter; her husband left her after she acquired her disability. Grace's daughter helps by fetching things from the store when her mother can't get there. She is of school age however she isn't attending school – Grace can't afford the school fees. Grace weaves and sells billums (bags) to support herself and her daughter, however in bad weather she can't reach the market to sell them. Sometimes her daughter takes them and sells them for her, however this means she is without her daughter's help at home.

Effectiveness of data collection tools

As well as collating and analysing the data collected using the four data collection tools, the February 2012 data analysis workshop also examined the effectiveness of the tools themselves, in terms of ease of use, usefulness in gathering information relevant to the research questions, and appropriateness for use in consulting with people with disabilities.

Identification of participants in the research

Generally the data collectors had little difficulty in identifying people with disabilities willing and available to participate in the research. They did this in a variety of ways, including via contact with a Community Based Rehabilitation (CBR) officer or disability service provider; through the existing networks of the Disabled People's Organisation in the area; local knowledge of people with disabilities in the area; talking to village councillors and government representatives, and via recommendations by other people with disabilities already involved.

Interviews with Road Decision Makers

Process
Contacting appropriate road decision makers (RDMs) and securing interview times was often time-consuming. In one location (Madang) the data collectors had a contact and so found this process easy; but others had to send formal letters of request or visit the RDM's organisation multiple times before obtaining an interview.

Because of these delays, the RDM interviews did not always take place prior to the other data collection activities, as was intended; however this was not considered a problem. They noted that it was a positive that the protocol was not too prescriptive about which RDMs to target, as this would have made the process more difficult. As it was they were able to be slightly opportunistic and interview the RDMs who were responsive. The interviews generally lasted between 30 minutes and one hour, and were mostly held in at the RDM's office.

The responses of RDMs who were interviewed to the interview process were generally positive. Data collectors felt that the interviews helped to inform RDMs about the needs and perspectives of people with disabilities, as well as the existence of PNGADP and provincial level DPOs. They also felt it helped to set up relationships with the RDMs and their organisations, which would assist in future phases of the project. The RDMs were generally receptive to the process and expressed a desire to learn more about the ways that people with disabilities used road infrastructure. Several commented that they had not thought

about the needs of people with disabilities before, but that they were interested to do so now.

The data collectors also found the interviews a positive process in most cases. They found it encouraging to engage with people who may have some influence and ability to address some of the barriers faced by people with disabilities in accessing road infrastructure. In one case the data collectors found the process intimidating, as the RDM felt the questions asked did not cover their areas of responsibility and wanted feedback on other issues. It was agreed that it would have been useful to have some information about road decision-making processes in PNG and the roles of various organisations, during the data collection training.

Questions
Some of the interview questions (Q 15 in particular) were designed to gather information from road decision makers about how road construction or refurbishment influenced things like prices, wages and travel patterns. However it was not realistic to expect RDMs to have detailed knowledge about these issues; nor is it possible, with the information gathered, to interpret whether such changes were as a result of road infrastructure. This question is being removed from the protocol.

Questions 9 and 10 asked RDMs about whether they were aware of or had seen people with disabilities using the road. Despite the fact that most could give little information about this, these questions were still useful as it highlighted the gaps in knowledge/experience that many of the RDMs have with regard to people with disabilities. However it is also the case that the RDMs may not actually use the road themselves or be familiar with the area, therefore could have other reasons for not knowing whether and how people with disabilities use the road. Therefore it would be useful to add question/s to gauge whether RDMs live or work around the road, in order to best interpret their responses.

Group Discussions

Process
Data collectors reported that they found the group discussion tool an interesting and useful data collection method, although sometimes challenging to implement. It generally took participants some time to understand and be comfortable with the process, and to be willing to talk. It was suggested that holding an initial meeting to give participants an introduction to the project, or some other activity which helped to build a rapport between the data collectors and participants, could be useful.

Strategies that worked well in carrying out group discussion included: taking the time to explain the process clearly and to ensure all participants understood the questions; translating the questions into a local language as well as Pidgin where appropriate; and rephrasing if necessary. Different groups took a different approach to answering questions:

some gave individual answers for each participant, while in other cases the participants agreed on a response amongst themselves, which was then recorded by the data collectors as a single answer. Data collectors reported that sometimes they received conflicting answers from different group members or there was disagreement amongst the group. In such cases they reported that the scribe needed to decide what was most significant to record. This suggests it may have been useful to emphasise in the protocol and data collection training that conflicting answers are expected, and that it is fine for the scribe to record different responses to a single question.

The data collectors found that working with large numbers of people during the group discussions was difficult. As the group discussion process required eliciting answers to the questions from each participant, larger groups meant that the discussions lasted too long. The time taken for group discussions varied from 1 – 5 hours in the different locations, with an average of about three hours.

It was recommended that the protocol emphasise that group discussions should ideally include a maximum of 6 – 8 people. This would also provide greater flexibility for the groups to split according to impairments where this may be appropriate. There were particular challenges with involving people with certain impairments in the group discussions. Data collectors reported that it was time-consuming to communicate with people with hearing and/or speech impairments. These participants usually had a personal assistant or parent who could communicate with them and translate for them. However in some cases, the assistant's ability to communicate with the participant seemed to be limited, and it appeared that they were actually speaking on behalf of the participant rather than translating for them. A separate group discussion for people with hearing impairments would allow more time for translation into sign language or the use of alternative communication methods.

Involvement of people with intellectual disabilities in the group discussions was also challenging. The data collectors found that they often needed to repeat or rephrase questions. Sometimes a personal assistant accompanying would assist in explaining questions. As with people with hearing impairments, facilitating a separate group discussion with people with intellectual impairments would potentially allow more time to communicate effectively with this group.

Several children were involved in the research, and some of these had intellectual impairments. Where children were accompanied by their parents, there was a tendency for the parents to give their own views rather than attempting to present the perspective of their children.

Questions

Participants generally found it easier to answer questions about themselves and their lives (e.g. questions 1 – 13). Questions about the roads seemed to be more difficult: this is probably because participants are less used to such questions and had not participated in a consultation about their needs in this area before. The questions which asked participants

to identify changes that had gone on in the community over time were, unsurprisingly, easier for older people to answer: the younger participants tended not to have a perspective on this.

Data collectors found that some questions had too many components to them: for example, question 9 asked not only how often people visited health workers, but also where they went and the kind of health issues they had. The data collectors suggested it would be easier to have separate shorter questions.

Moveabouts

Process
The moveabouts typically took about 1 hour to complete, although in one location the process took 3 hours. The distances covered varied from about 250 metres to about 700 metres, with between 7 and 10 participants across the locations. Typically the location for the moveabout was suggested by the participants: where there were particular conditions required (e.g. that the road be under construction), the data collectors gave the group a couple of options for road locations.

The data collectors reported that the moveabouts were well received and enjoyed by the participants. People were pleased that their opinions were being sought and respected, and that somebody was actually interested in their use of the road and its impacts on them.

In terms of an information-gathering tool, the moveabouts proved very useful. Data collectors stated that it was easier to get responses and perspectives about the road in the real-life setting of travelling along the road, compared to the environment of the group discussions. The groups were also quite diverse and included people with varied impairments, which provided an opportunity for them to understand and learn about the barriers faced by those with various impairments. In some locations, some participants had not used the road much prior to the moveabout, and so this also gave them exposure to the infrastructure available (or not).

The moveabouts also proved useful as an advocacy tool in some locations, by raising the profile of people with disabilities and their use of roads. In some areas elected officials were involved in the moveabout, and in others community members were interested in the process and sometimes even helped to protect the group from traffic, indicating to vehicles to slow down.

Safety
As per the protocol, the data collectors took various precautions to ensure that participants remained safe during the moveabouts. They brought water and food along, and arranged for a support vehicle to accompany the group in case anyone needed transport. In Madang

the data collectors identified two helpers to ensure the group stayed together and to watch out for traffic: the rural police also provided traffic cones.

In several locations the conditions were very hot, and sometimes there was little shade available though participants brought hats and umbrellas. This limited the distance that was covered: participants got tired and some needed to use the support vehicles to complete the moveabout. The nature of the activity also meant some people got tired, as it was difficult for people with some impairments to navigate the road. Access to toilets was also an issue in some cases.

Questions
Data collectors reported that the first three questions (asking how people use the road, where they cross, and good and bad experiences they have had on the road) worked best for the groups. For some participants, data collectors found that they needed to probe and ask follow-up questions in order to get beyond yes/no answers for some questions. Factual questions were generally easier for participants to answer than those asking for their opinions.

Visually impaired participants were not able to answer questions such as where lights and signs are located. In addition, these questions needed to be adapted slightly in some areas (such as where there was no electricity and hence no lighting), however data collectors were able to do this easily.

Question 13 ("Are there abandoned buildings or other unsafe places near the road?") received a negative answer in all cases, and it may be that this is not a particularly relevant question in the PNG context.

Photo Elicitation and Poster Making

Process
Disposable cameras were distributed to participants to take photos of aspects of the road and associated infrastructure that were significant to them. Participants were generally excited to get the cameras, especially children.

Once processed, the groups then used the photos to make posters showing their likes and dislikes of features of the road. In two locations, people made individual posters with their own photos; in two they made group photos; and in one location they did both. All approaches seemed to work well. The individual posters allowed people a chance to use their own personal pictures and highlight issues for people with different impairments and perspectives, however group posters meant that the group needed to reach consensus and could prioritise the most important issues to highlight. Both these are important outcomes – so the option of making both individual posters and a group poster may be worth recommending, if there is time for groups to do so.

The project encountered some problems in implementing the activity. In particular, the use of disposable film cameras meant that it was difficult and/or expensive to process the photos in some locations. This caused delays in the poster-making activity, which in Goroka meant some of those who had taken photos were not available for the poster-making. Given the proliferation of cheap digital cameras, camera phones etc, it would be worth exploring ways to use such technology in photo elicitation. For example this might involve participants taking digital photos during the moveabouts, digital cameras being loaned to participants (although there are obvious security issues with this option), or data collectors accompanying participants to key locations to allow them to take photos. Digital photos would also be easier to store and use in analysis and reporting.

The quality of photos taken was sometimes an issue. Understandably, participants were excited with the cameras and were in fact encouraged to take a few personal photos; but for some groups, particularly where there were several children in the group, most of the photos taken did not focus on roads. However in other groups the photos provided very useful illustration of the types of barriers faced by people with disabilities in accessing road infrastructure. Given that for many participants, it was their first time using cameras, it is perhaps understandable that some of the photos produced were less relevant. Using a digital camera might also provide greater opportunity for people to take test photos and explore the technology without compromising the activity.

It should also be noted that even the photos that were less relevant to road infrastructure still provided some valuable information about the lives of the participants: for instance, in Lae many child participants took photos centred around their houses, suggesting that they have limited opportunities to travel outside their homes.

Information-gathering

Use of photos and poster-making also helped to elicit responses from some participants who had not participated as much in other activities. For instance, in Madang and Port Moresby, people with speech and/or hearing impairments were able to write captions on the posters and give their perspectives this way. Photos also acted as a prompt and helped some group members who had been less talkative to articulate issues they wished to raise. The process of taking the photos and making posters also helped sensitise participants to issues with the roads, and helped them recognise and articulate the issues they faced in accessing roads.

Data collectors reported that the information that came out of this activity was sometimes new, but more often a repeat or confirmation of the data that had come from other activities.

Next steps

Based on the findings of the data collection and analysis, the focus of the final year of the project (May 2012 – April 2013) is to:

- Develop guidelines to support disability inclusive infrastructure consultation, planning and development for use by a variety of stakeholders, such as AusAID, the Government of PNG, UNESCAP, UN-Habitat and contractors currently operating in PNG;
- Develop a training package for disability inclusive infrastructure planning and development, to be conducted by disability organizations for infrastructure stakeholders;
- Work to ensure that people with disabilities, including women, have ownership of the research and the capacity to utilise the findings in advocacy with the PNG government and development sectors; and
- Disseminate the findings of the research and the guidelines and training package, particularly to donors, road decision-makers, people with disabilities and their organisations in PNG and the broader planning and disability communities.

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[i] NRSC, April 2011, p vi.
[ii] NSRC, April 2011, p viii.